



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/782,509	02/12/2001	Woobin Lee	1552-7-10	7513

996 7590 12/14/2004

GRAYBEAL, JACKSON, HALEY LLP
155 - 108TH AVENUE NE
SUITE 350
BELLEVUE, WA 98004-5901

EXAMINER

DANG, DUY M

ART UNIT	PAPER NUMBER
----------	--------------

2621

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/782,509

Applicant(s)

LEE, WOOBIN

Examiner

Duy M Dang

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 and 33-57 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8, 15-24, 34-36, and 43-52 is/are allowed.
- 6) ☒ Claim(s) 9-14, 25-31, 33, 37-42 and 53-57 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. Applicant's amendment filed 8/3/04 has been entered and made of record.
2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 9-14, 25-31, 33, 37-42, and 53-57 are rejected under 35 U.S.C. 102(b) as being anticipated by Masaki et al. ("VLSI Implement of Inverse Discrete Cosine Transformer and Motion Compensator for MPEG2 HDTV Video Decoding" IEEE Transactions on Circuits and Systems for Video Technology, Vol. 5, No. 5, October 1995, pages 387-395. Art of record filed 3/4/02, paper #5).

Regarding claim 9, Masaki teaches an image decoder (i.e., decoder mentioned in abstract and shown in figure 1) comprising: memory rows (see "frame memory", "buffer", and "register" shown in figure 1; and the "transposition memory" shown in figure 7) and a processor coupled to memory rows and operable to (see "DSP" shown in figure 1 and mentioned in page 387, right column, last 7 lines) to combine a first matrix column of first intermediate values with a second matrix column of second intermediate values to generate a set of resulting values and store the set of resulting values in more than one memory rows (see buffer 2 shown in figure 7. Note this buffer 2 comprises a combination of first column of first intermediate values (i.e., block 0) with a second column of second intermediate values (i.e., block 2)).

Regarding claim 10, Masaki further teaches Masaki values (see the "xe" ("e" refers to even) and "xo" ("o" refers to odd) shown in the equation mentioned on page 389 left column.

Art Unit: 2621

This interpretation is consistent with applicant's disclosed on the specification page 12 lines 3-15).

Regarding claim 11, Masaki further teaches a second memory register (see buffer 2 of Transposition Memory shown in figure 7), and store the first and second intermediate values of the first and second column in the second memory register (see buffer 2 shown in figure 7 comprising "block0" and "block2").

Regarding claim 12, Masaki further teaches adding the first intermediate values to the second intermediate values (see the adder included in the IDCT shown in figure 5 and text portion mentioned in second paragraph on page 391 left column).

Regarding claim 13, Masaki further teaches subtracting the first intermediate values to the second intermediate values (see the subtracter included in the IDCT shown in figure 5 and text portion mentioned in second paragraph on page 391 left column).

Regarding claim 14, Masaki further teaches generating first column of first intermediate values and second column of second intermediate values (see figure 6 and text portion mentioned under "Transposition Memory" section on page 391 right column).

The advanced statement as applied to claim 9 above are incorporated herein. Regarding claim 25, Masaki teaches an image decoder (i.e., decoder mentioned in abstract and shown in figure 1) comprising a processor operable (see "DSP" shown in figure 1 and mentioned in page 387, right column, last 7 lines) to:

receive pixel values that each occupy a respective position within an original row of pixel values (see "output" shown in figure 7. The positions between the "block" and "row" shown in this figure 7 refers to the so called "respective position");

Art Unit: 2621

store the pixel values that respectively occupy every other position of the row in a first continuous section of a register (see figure 7. Note that the “block 1” and “block 3” in buffer 1 refers to the so called “every other position”), and

store the pixel values that respectively occupy remaining positions of the row in a second continuous section of the register (see figure 7. Note buffer 2).

Regarding claim 26, Masaki further teaches even positions within the row (see figure 6a: even positions “26” (coordinated at $x=2$, $y=2$ with regard to the origin at “29” (bottom left corner of the 8x8 block)) and “28” (coordinated at $x=4$, $y=2$) within the 2nd row (row of “25, 26, 27, 28, 28, 27, 26, 25”)) and odd position within the row (see figure 6a: odd positions of “21” (Likewise, coordinated at $x=1$, $y=3$) and “23” (Likewise, coordinated at $x=3$, $y=3$) within a 3rd row (row of “21, 22, 23, 24, 24, 23, 22, 21”)).

Regarding claim 27, Masaki further teaches the pixel values each comprises a respective encoded pixel value (see figure 6 and text portion mentioned under “Transposition Memory” section on page 391 right column. Note the pixel values stored in the transposition memory (transposed data) refer to encoded pixel values order for the IDCT to inverses its original value).

Regarding claim 28, Masaki further teaches DCT coefficient (this features is inherently included in the “encoding/decoding” mentioned on page 387, right column, lines 1-3).

Regarding claim 29, Masaki further teaches receiving a block of pixel values (see figure 6 and text portion mentioned under “Transposition Memory” section on page 391 right column. Note that this data block is written to transposition memory and received by IDCT according to figure 7).

Art Unit: 2621

Regarding claim 30, it is noted that this claim recites similar features called for in claim 9. Thus, claim 30 is also rejected for the same reason as set forth in claim 9 above.

Regarding claim 31, Masaki further teaches Masaki values (see the “xe” (“e” refers to even) and “xo” (“o” refers to odd) shown in the equation mentioned on page 389 left column. This interpretation is consistent with applicant’s disclosed on the specification page 12 lines 3-15).

Regarding claim 33, Masaki further teaches first and second matrix columns of intermediate values (see figures 6-7).

Regarding claim 37, it is noted that this claim recites similar features called for in claim 9. Thus, claim 37 is also rejected for the same reason as set forth in claim 9 above.

Regarding claim 38, Masaki further teaches Masaki values (see the “xe” (“e” refers to even) and “xo” (“o” refers to odd) shown in the equation mentioned on page 389 left column. This interpretation is consistent with applicant’s disclosed on the specification page 12 lines 3-15).

Regarding claim 39, Masaki further teaches a second memory register for storing first and second intermediate values of the first and second matrix columns (see buffer 2 of transposition memory shown in figure 7).

Regarding claim 40, Masaki further teaches adding the first intermediate values to the second intermediate values (see the adder included in the IDCT shown in figure 5 and text portion mentioned in second paragraph on page 391 left column).

Regarding claim 41, Masaki further teaches subtracting the first intermediate values to the second intermediate values (see the subtracter included in the IDCT shown in figure 5 and text portion mentioned in second paragraph on page 391 left column).

Regarding claim 42, Masaki further teaches generating first column of first intermediate values and second column of second intermediate values (see figure 6 and text portion mentioned under “Transposition Memory” section on page 391 right column).

Regarding claim 53, it is noted that this claim recites similar features called for in claim 25. Thus, claim 53 is also rejected for the same reason as set forth in claim 25 above.

Regarding claim 54, Masaki further teaches even positions within the row (see figure 6a: even positions “26” (coordinated at $x=2$, $y=2$ with regard to the origin at “29” (bottom left corner of the 8x8 block)) and “28” (coordinated at $x=4$, $y=2$) within the 2nd row (row of “25, 26, 27, 28, 28, 27, 26, 25”)) and odd position within the row (see figure 6a: odd positions of “21” (Likewise, coordinated at $x=1$, $y=3$) and “23” (Likewise, coordinated at $x=3$, $y=3$) within a 3rd row (row of “21, 22, 23, 24, 24, 23, 22, 21”)).

Regarding claim 55, Masaki further teaches the pixel values each comprises a respective encoded pixel value (see figure 6 and text portion mentioned under “Transposition Memory” section on page 391 right column. Note the pixel values stored in the transposition memory (transposed data) refer to encoded pixel values order for the IDCT to inverses its original value).

Regarding claim 56, Masaki further teaches DCT coefficient (this features is inherently included in the “encoding/decoding” mentioned on page 387, right column, lines 1-3).

Regarding claim 57, Masaki further teaches extracting the row of pixel values from a zigzag-encoded block of pixel values (see figure 6: Note the data block shown in figure 6 refers

Art Unit: 2621

to the so called “zigzag-encoded block of pixels and these data block are extracted according to the text portion mentioned under “Transposition Memory” section on page 391 right column).

4. Claims 1-8, 15-24, 34-36, and 43-52 are allowed.

5. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 1, the closest prior art (Masaki) fails to teach or suggest the features of: a memory having rows of storage locations and processor coupled to the memory and operable to store in a row of the memory intermediate values from first and second matrix columns, combine the stored intermediate values within the row to generate resulting values for third and fourth matrix columns, and store the resulting values in respective rows of the memory.

Dependent claims 2-4 and 8 are also allowed for the same reasons as above.

Regarding claim 5, the closest prior art (Masaki) does not teach the features recited in lines 7-10. Claim 34 is allowable for the same reasons as claim 5.

Regarding claim 6, the closest prior art (Masaki) does not teach the features recited in lines 7-12. Claim 35 is allowable for the same reasons as claim 6.

Regarding claim 7, the closest prior art (Masaki) does not teach the features recited in lines 8-15. Claim 36 is allowable for the same reasons as claim 7.

Regarding claim 15, the closest prior art (Masaki) does not teach the features recited in lines 4-12. Depend claims 16-24 are allowed for the same reasons as claim 15.

Regarding claim 43, the closest prior art (Masaki) does not teach the features recited in lines 2-12. Dependent claims 44-52 allowed for the same reasons as claim 43.

6. Applicant's arguments filed 8/3/04 have been fully considered but they are not persuasive.

Art Unit: 2621

In response to applicant's remarks with regard to claim 9, the examiner disagrees because Figure 6a of Masaki teaches store a set of resulting values in more than one of the memory rows.

In response to applicant's remarks with regard to claim 25, the examiner disagrees because Masaki does teach these claimed invention. For example, Masaki teaches: receive pixel values that each occupy a respective position within an original row of pixel values (see "output" shown in figure 7. The positions between the "block" and "row" shown in this figure 7 refers to the so called "respective position"); store the pixel values that respectively occupy every other position of the row in a first continuous section of a register (see figure 7. Note that the "block 1" and "block 3" in buffer 1 refers to the so called "every other position"), and store the pixel values that respectively occupy remaining positions of the row in a second continuous section of the register (see figure 7. Note buffer 2).

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2621

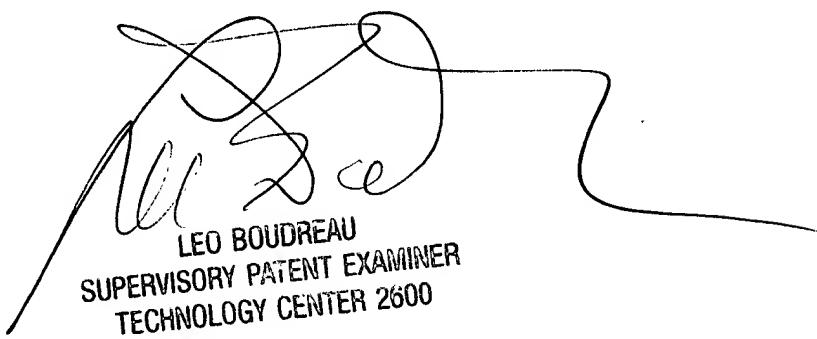
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duy M Dang whose telephone number is 703-305-1464. The examiner can normally be reached on Monday to Friday from 5:30AM to 2:00PM..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo H Boudreau can be reached on 703-305-4706. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



dmd
12/9/04


LEO BOUDREAU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600